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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,852	07/15/2003	Lincoln Muir	IVGN 334	4340

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EXAMINER	
NEGIN, RUSSELL SCOTT	
ART UNIT	PAPER NUMBER
1631	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/618,852	MUIR ET AL.	
	Examiner	Art Unit	
	RUSSELL S. NEGIN	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *37-40 and 42-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *37-40 and 42-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Comments

Applicants' amendments and request for reconsideration in the communication filed on 24 August 2007 are acknowledged and the amendments are entered.

Claims 37-40 and 42-46 are pending and examined in the instant Office action.

Sequence Compliance

The application is now in compliance with sequence rules.

Withdrawn Rejections

The rejection of claim 38 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of arguments by applicant on pages 4-5 of the Remarks of 26 December 2007.

The rejections of claims 37-40, 44, and 46 under 35 U.S.C. 102(e) as being anticipated by Dumas Milne Edwards et al. [USPAT 7,060,479] are withdrawn in view of arguments by applicant on pages 5-6 of the Remarks of 26 December 2007.

The rejections of claims 42 and 45 under 35 U.S.C. 103(a) as being unpatentable over Dumas Milne Edwards et al. in view of Stearman et al. [Science, volume 271, 1996, pages 1552-1557] are withdrawn in view of arguments by applicant on pages 6-7 of the Remarks of 26 December 2007.

The rejection of claim 43 under 35 U.S.C. 103(a) as being unpatentable over Dumas Milne Edwards et al. in view of Senecoff et al. [The Journal of Biological Chemistry, volume 261, 1986, pages 7380-7386] is withdrawn in view of arguments by applicant on pages 7-8 of the Remarks of 26 December 2007.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following rejection is newly applied:

Claims 37-40, 44, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Dumas Milne Edwards et al. [USPAT 7,060,479; issued 13 June 2006; filed 8 June 2001] in light of von der Haar et al. [Trends in Microbiology, volume 15, 2007, pages 78-86].

The invention of Dumas Milne Edwards et al., studies full-length human cDNAs encoding potentially secreted proteins and states as its objective on column 4, lines 48-55:

> The present invention provides compositions containing a purified or isolated polynucleotide comprising, consisting of, or consisting essentially of a nucleotide sequence selected from the group consisting of: (a) the sequences of SEQ ID Nos: 1-241; (b) the sequences of clone inserts of the deposited clone pool; (c) the full coding sequences of SEQ ID Nos: 1-241; (d) the full coding sequences of the clone inserts of the deposited clone pool; (e) the sequences encoding one of the polypeptides of SEQ ID Nos: 242-482…

Dumas Milne Edwards et al. study the required quantity of clones which encode polypeptides.

Although Dumas Milne Edwards et al. do not explicitly discuss suppressible stop codons, it is inherent in Dumas Milne Edwards et al. that the stop codons discussed are suppressible. Dumas Milne Edwards et al. explain in column 26, lines 39-44 regarding the purpose of stop codons:

> Accordingly, the full coding sequence (CDS) or open reading frame (ORF) of each cDNA of the invention refers to the nucleotide sequence beginning with the first nucleotide of the start codon and ending with the last nucleotide of the stop codon.

In the absence of a clear definition in the specification to indicate otherwise, the term "stop codon" is interpreted as a stop codon that can be suppressed. It is an inherent feature for all stop codons that they are suppressible because they at least can be artificially mutated into nonstop codons such that they are suppressed.

As a reference to support this inherent feature of stop codons, the review article of von der Haar et al. shows the regulated translational bypass of stop codons in yeast. The review of von der Haar et al. describes the regulation (i.e. suppression and activation) of the stop codons in *Saccharomyces cerevisiae* (see abstract). The study of von der Haar et al. does not disclose or give support for stop codons that are incapable of being suppressed.

Consequently, Dumas Milne Edwards et al. describe a clone collection with a size of 241 clones (which fit into the range of about 50 to about 100,000 clones) with suppressible stop codons.

Claim 38 is dependent from claim 37 with the additional limitation that the polypeptides are a drugable target.

Claim 39 is dependent from claim 37 with the additional limitation that the polypeptides are selected from a group of different protein classes.

Claim 40 is dependent from claim 39 where the polypeptides are G-protein-coupled receptors.

Claim 44 is dependent from claim 39 where the polypeptides are kinases.

Consequently, Dumas Milne Edwards et al. discusses clone collections, and they further state in column 301, lines 42-45, "These receptors, which are expressed in the brain, like the protein of the invention, are a novel family of cloned G protein-coupled receptors." G protein-coupled receptors have a finite activity.

In terms of kinases, Dumas Milne Edwards et al. discusses clone collections, and they further state in column 135, lines 56-60, "The EGF receptor, and the related ErbB family of receptor tyrosine kinases, have indeed been much implicated in human cancer."

Many proteins are encoded such that it is interpreted that substantially all of certain species of enzymatic activities are encoded (i.e. G protein coupled receptors and kinases).

Kinases and G-protein coupled receptors are both drugable targets.

Claim 46 is drawn to the same sized clone collection as claim 37 (i.e. from about 50 to about 100,000 clones), each clone comprising in order, a nucleic acid sequence of

interest, a suppressible stop codon, and a tag sequence wherein the nucleic acid sequence of interest encodes a polypeptide.

The invention of Dumas Milne Edwards et al. studies full-length human cDNAs encoding potentially secreted proteins and states as its objective on column 4, lines 48-55:

> The present invention provides compositions containing a purified or isolated polynucleotide comprising, consisting of, or consisting essentially of a nucleotide sequence selected from the group consisting of: (a) the sequences of SEQ ID Nos: 1-241; (b) the sequences of clone inserts of the deposited clone pool; (c) the full coding sequences of SEQ ID Nos: 1-241; (d) the full coding sequences of the clone inserts of the deposited clone pool; (e) the sequences encoding one of the polypeptides of SEQ ID Nos: 242-482...

Consequently, Dumas Milne Edwards et al. study the required quantity of clones which encode polypeptides.

Dumas Milne Edwards et al. continue by discussing in column 152, lines 22-25:

> For example, the protein may be rendered easily detectable by inserting the cDNA encoding the protein of the invention into a eukaryotic expression vector in frame with a sequence encoding a tag sequence.

Consequently, Dumas Milne Edwards et al. disclose a method for encoding a protein with a nucleic acid sequence containing a tag sequence.

Response to Arguments:

Applicant's arguments filed 26 December 2007 have been fully considered but they are not persuasive.

Applicant argues that the inherent feature of the reference of Dumas Milne Edwards et al. that all stop codons are to a degree suppressible. Applicant gives exemplary embodiments of what entails a stop codon in the specification but never

explicitly defines what makes a stop codon suppressible. In the absence of such a definition, the art is consulted to determine what makes a stop codon suppressible. The study of von der Haar et al. shows that the stop codons in yeast are capable of regulation and suppressible. There is no evidence in applicant's original disclosure or the prior or post art that shows the existence of stop codons that are impossible to be suppressed. Consequently, it is inherent that the stop codons in Dumas Milne Edwards et al. are suppressible.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following 35 U.S.C. 103 Rejection is newly applied:

35 U.S.C. 103 Rejection #1:

Claims 37, 42, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumas Milne Edwards et al. as evidenced by von der Haar et al. in view of Stearman et al. [Science, volume 271, 1996, pages 1552-1557].

Claim 42 is dependent from claim 37 wherein the nucleic acid sequences of interest comprise a tag sequence and the suppressible stop codon is located between the tag sequence and the encoded polypeptide.

Claim 45 is dependent from claim 42 wherein the suppressible stop codon is in-frame with the sequence of interest.

Dumas Milne Edwards et al. as applied above teach the use of sequences with suppressible stop codons.

Dumas Milne Edwards et al. do not teach the use of tag sequences in combinations with the suppressible stop codons.

In the article of Stearman et al., Stearman et al. investigates a permease-oxidase complex involved in high-affinity iron uptake in yeast. Stearman et al. describes uses of tags for determining the locations of certain proteins. As stated in the last paragraph of column 2 on page 1554, "We tested this hypothesis by determining the localization of the FTR1 protein, using a MYC epitope-tagged protein." The article continues to describe the use of tags and their insertions in footnote 37 on page 1557.

In *KSR Int'l v. Teleflex*, the Supreme Court, in rejecting the rigid application of the teaching, suggestion, and motivation test by the Federal Circuit, indicated that

> The principles underlying [earlier] cases are instructive when the question is whether a patent claiming the combination of elements of prior art is obvious. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.

KSR Int'l v. Teleflex Inc., 127 S. Ct. 1727, 1740 (2007).

Applying the KSR standard of obviousness to the addition of a tag sequence as described in Stearman et al. to the sequences with suppressible stop codons of Dumas Milne Edwards et al., Examiner concludes that such addition is a use of known technique to improve similar methods or devices. Using the known technique of tagging sequences to mark regions of the sequence of interest would have been obvious to one of ordinary skill.

Response to Arguments:

Applicant's arguments filed 26 December 2007 have been fully considered but they are not persuasive.

Applicant first argues that this rejection is deficient because the 35 U.S.C. 102 rejection on the base claim is deficient. For the reasons discussed above, the 35 U.S.C. 102 Rejection is not deficient.

Applicant next argues that the rationale for the obviousness prior art rejection has not been clearly stated. In response, the rationale for combining the references is more clearly outlined above in the instant rejection.

The following rejection is newly applied:

35 U.S.C. 103 Rejection #2:

Claims 37 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumas Milne Edwards et al. as evidenced by von der Haar et al. in view of Senecoff et al. [The Journal of Biological Chemistry, volume 261, 1986, pages 7380-7386].

Claim 43 is dependent from claim 37 with the additional limitation that the nucleic acid sequences of interest are flanked by a first and second recombination site and the first and second recombination sites do not recombine with each other.

Dumas Milne Edwards et al. as applied above teach the use of sequences with suppressible stop codons.

Dumas Milne Edwards et al. do not teach the recombination sites as recited in instant claim 43.

The study of Senecoff et al. studies the directionality in FLP protein-promoted site-specific recombination is mediated by DNA-DNA pairing and illustrates on page 7381, column 1, a double stranded DNA sequence of interest surrounded by two recombination sites. As stated in the first sentence of the abstract, "The 2u plasmid of the yeast *Saccharomyces cerevisiae* encodes a site specific recombination system consisting of plasmid-encoded FLP protein and two recombination sites on the plasmid." Figure 1 of Senecoff et al. illustrates how modifying the recombination sites affects the directionalities of sequences.

In *KSR Int'l v. Teleflex*, the Supreme Court, in rejecting the rigid application of the teaching, suggestion, and motivation test by the Federal Circuit, indicated that

> The principles underlying [earlier] cases are instructive when the question is whether a patent claiming the combination of elements of prior art is obvious. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.

KSR Int'l v. Teleflex Inc., 127 S. Ct. 1727, 1740 (2007).

Applying the KSR standard of obviousness to the addition of recombination sites as described in Stearman et al. to the sequences with suppressible stop codons of Dumas Milne Edwards et al., Examiner concludes that such addition is a use of known technique to improve similar methods or devices. Using the known technique of using recombination sites to modify sequences with suppressible codons for the purposes of understanding directionalities of specific proteins would have been obvious to one of ordinary skill.

Response to Arguments:

Applicant's arguments filed 26 December 2007 have been fully considered but they are not persuasive.

Applicant first argues that this rejection is deficient because the 35 U.S.C. 102 rejection on the base claim is deficient. For the reasons discussed above, the 35 U.S.C. 102 Rejection is not deficient.

Applicant next argues that the rationale for the obviousness prior art rejection has not been clearly stated. In response, the rationale for combining the references is more clearly outlined above in the instant rejection.

Conclusion

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the central PTO Fax Center. The faxing of such pages must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center Number is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Negin, Ph.D., whose telephone number is (571) 272-1083. The examiner can normally be reached on Monday-Friday from 7am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Marjorie Moran, Supervisory Patent Examiner, can be reached at (571) 272-0720.

Information regarding the status of the application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information on the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RSN
3/25/08

/Michael Borin, Ph.D./
Primary Examiner, Art Unit 1631